



July 10, 2023

Tasman Geosciences

Andy Sagen

6855 West 119th Avenue

Broomfield CO 80020

Project Name - KMG - VOGL 5-8A

Project Number - [none]

Attached are your analytical results for KMG - VOGL 5-8A received by Origins Laboratory, Inc. June 21, 2023. This project is associated with Origins project number Y306555-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-B01@6'	Y306555-01	Soil	June 21, 2023 13:53	06/21/2023 17:15
FL-B01@4'	Y306555-02	Soil	June 21, 2023 14:21	06/21/2023 17:15
FL-B02@4'	Y306555-03	Soil	June 21, 2023 14:23	06/21/2023 17:15
BG01@3'	Y306555-04	Soil	June 21, 2023 14:11	06/21/2023 17:15
BG01@6'	Y306555-05	Soil	June 21, 2023 14:13	06/21/2023 17:15
BG02@3'	Y306555-06	Soil	June 21, 2023 14:15	06/21/2023 17:15
BG02@6'	Y306555-07	Soil	June 21, 2023 14:17	06/21/2023 17:15

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4300555

Client: Tasman

Client Project ID: VOGL 5-8A

Checklist Completed by: EHS

Shipped Via: HD

Date/time completed: 6/21/23

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____

Cooler Number/Temperature: 1, 10 °C / _____ °C / _____ °C (Describe) _____ °C

Thermometer ID: 7004

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		/		
Is there ice present (document if blue ice is used)	/			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)			/	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)			/	
Were all samples received intact ⁽¹⁾ ?	/			
Was adequate sample volume provided ⁽¹⁾ ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		/		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	/			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	/			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	/			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			/	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ ; HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			/	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Emm... ..
 Reviewed by (Project Manager)

6/21/23
 Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

Jen Pellegrini, Project Manager

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 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

WH-B01@6'
6/21/2023 1:53:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-01 (Soil)

Boron (DTPA Sorbitol)

Boron	0.369		0.0995	mg/L	1	B3F2213	06/22/2023	06/23/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	119		25.0	mg/kg	1	B3F2137	06/21/2023	06/21/2023	
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: *o*-Terphenyl 77.8 % 50-150 " " "

GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	0.0770		0.00200	mg/kg	1	B3F2135	06/21/2023	06/22/2023	
1,3,5-Trimethylbenzene	0.0180		0.00200	"	"	"	"	"	
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Naphthalene	0.00788		0.00380	"	"	"	"	"	
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	0.0120		0.00200	"	"	"	"	"	
Gasoline Range Hydrocarbons	10.9		0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 87.9 % 70-130 " " "

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

WH-B01@6'
6/21/2023 1:53:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-01 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	96.0 %		70-130			B3F21 35	06/21/2023	06/22/2023	
Surrogate: 4-Bromofluorobenzene	84.7 %		70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	5.17		0.499	meq/L	10	[CALC]	06/22/2023	06/23/2023	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	1.21		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	11.0			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	0.750			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.846		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B01@4'

6/21/2023 2:21:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-02 (Soil)

Boron (DTPA Sorbitol)

Boron	0.460		0.0981	mg/L	1	B3F2213	06/22/2023	06/23/2023	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	798		25.0	mg/kg	1	B3F2137	06/21/2023	06/22/2023	
Residual Range Organics (C28-C40)	1430		100	"	"	"	"	"	

Surrogate: o-Terphenyl	68.3 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B3F2135	06/21/2023	06/22/2023	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Naphthalene	0.314		0.00380	"	"	"	"	"	
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	2.77		0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	94.0 %		70-130			"	"	"	
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Tasman Geosciences
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 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B01@4'

6/21/2023 2:21:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y306555-02 (Soil)

GBTEX+TMBs by 8260D

Surrogate: Toluene-d8	97.1 %		70-130			B3F21 35	06/21/2023	06/22/2023	
Surrogate: 4-Bromofluorobenzene	98.8 %		70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	1.33	0.499	meq/L	10	[CALC]		06/22/2023	06/23/2023	
Magnesium	ND	0.823	"	"	"		"	"	
Sodium	0.584	0.435	"	"	"		"	"	

PAH by EPA 8270E

1-Methylnaphthalene	0.029	0.002	mg/kg	1	B3F2306		06/23/2023	06/27/2023	
2-Methylnaphthalene	0.070	0.002	"	"	"		"	"	
Acenaphthene	ND	0.020	"	"	"		"	"	U
Anthracene	ND	0.020	"	"	"		"	"	U
Benzo (a) anthracene	ND	0.010	"	2	"		"	06/27/2023	U
Benzo (a) pyrene	ND	0.040	"	"	"		"	"	U
Benzo (b) fluoranthene	ND	0.040	"	"	"		"	"	U
Benzo (k) fluoranthene	ND	0.040	"	"	"		"	"	U
Chrysene	ND	0.040	"	"	"		"	"	U
Dibenz (a,h) anthracene	ND	0.040	"	"	"		"	"	U
Fluoranthene	ND	0.020	"	1	"		"	06/27/2023	U

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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B01@4'

6/21/2023 2:21:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-02 (Soil)

PAH by EPA 8270E

Fluorene	ND		0.020	mg/kg	1	B3F2306	06/23/2023	06/27/2023	U
Indeno (1,2,3-cd) pyrene	ND		0.040	"	2	"	"	06/27/2023	U
Naphthalene	0.137		0.002	"	1	"	"	06/27/2023	
Pyrene	ND		0.040	"	2	"	"	06/27/2023	U

Surrogate: Nitrobenzene-d5	78.8 %		60-130			"	"	06/27/2023	
Surrogate: 2-Fluorobiphenyl	98.3 %		60-130			"	"	"	
Surrogate: Terphenyl-d14	76.5 %		60-130			"	"	06/27/2023	

pH in Soil by 9045D

pH	8.35			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	0.650			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.449		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Table 915 metals by EPA 6020B

Arsenic	2.84		0.0961	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
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Tasman Geosciences
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 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B01@4'

6/21/2023 2:21:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y306555-02 (Soil)

Table 915 metals by EPA 6020B

Barium	495		9.61	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Cadmium	0.161		0.0961	"	"	"	"	"	
Copper	11.5		9.61	"	"	"	"	"	
Lead	25.8		9.61	"	"	"	"	"	
Nickel	ND		9.61	"	"	"	"	"	U
Selenium	0.108		0.0961	"	"	"	"	"	
Silver	ND		0.0961	"	"	"	"	"	U
Zinc	ND		96.1	"	"	"	"	"	U

Total Metals by 7196A

Chromium, Hexavalent	ND	0.248	0.51	mg/Kg	1	L691255	06/21/2023	07/06/2023	
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 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B02@4'

6/21/2023 2:23:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.
 Y306555-03 (Soil)**

Boron (DTPA Sorbitol)

Boron	ND		0.0980	mg/L	1	B3F2213	06/22/2023	06/23/2023	U
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND		25.0	mg/kg	1	B3F2137	06/21/2023	06/22/2023	U
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	U

Surrogate: <i>o</i> -Terphenyl	71.8 %		50-150			"	"	"	
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GBTEX+TMBs by 8260D

1,2,4-Trimethylbenzene	ND		0.00200	mg/kg	1	B3F2135	06/21/2023	06/22/2023	U
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	U
Benzene	ND		0.00200	"	"	"	"	"	U
Ethylbenzene	ND		0.00200	"	"	"	"	"	U
Naphthalene	0.0148		0.00380	"	"	"	"	"	
Toluene	ND		0.00200	"	"	"	"	"	U
Xylenes, total	ND		0.00200	"	"	"	"	"	U
Gasoline Range Hydrocarbons	ND		0.200	"	"	"	"	"	U

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 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B02@4'

6/21/2023 2:23:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-03 (Soil)

GBTEX+TMBs by 8260D

Surrogate: 1,2-Dichloroethane-d4	85.3 %		70-130			B3F21 35	06/21/2023	06/22/2023	
Surrogate: Toluene-d8	95.6 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	83.7 %		70-130			"	"	"	

Metals by Saturated Paste by EPA 6010

Calcium	1.25		0.499	meq/L	10	[CALC]	06/22/2023	06/23/2023	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	

PAH by EPA 8270E

1-Methylnaphthalene	0.005		0.002	mg/kg	1	B3F2306	06/23/2023	06/26/2023	
2-Methylnaphthalene	0.010		0.002	"	"	"	"	"	
Acenaphthene	ND		0.020	"	"	"	"	"	U
Anthracene	ND		0.020	"	"	"	"	"	U
Benzo (a) anthracene	ND		0.005	"	"	"	"	"	U
Benzo (a) pyrene	ND		0.020	"	"	"	"	"	U
Benzo (b) fluoranthene	ND		0.020	"	"	"	"	"	U
Benzo (k) fluoranthene	ND		0.020	"	"	"	"	"	U
Chrysene	ND		0.020	"	"	"	"	"	U
Dibenz (a,h) anthracene	ND		0.020	"	"	"	"	"	U

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 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B02@4'

6/21/2023 2:23:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-03 (Soil)

PAH by EPA 8270E

Fluoranthene	ND		0.020	mg/kg	1	B3F2306	06/23/2023	06/26/2023	U
Fluorene	ND		0.020	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND		0.020	"	"	"	"	"	U
Naphthalene	0.028		0.002	"	"	"	"	"	
Pyrene	ND		0.020	"	"	"	"	"	U

Surrogate: Nitrobenzene-d5	80.7 %		60-130			"	"	"	
Surrogate: 2-Fluorobiphenyl	113 %		60-130			"	"	"	
Surrogate: Terphenyl-d14	95.4 %		60-130			"	"	"	

pH in Soil by 9045D

pH	9.10			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	0.136			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	0.216		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Table 915 metals by EPA 6020B

Origins Laboratory, Inc.



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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

FL-B02@4'

6/21/2023 2:23:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 Y306555-03 (Soil)

Table 915 metals by EPA 6020B

Arsenic	2.00		0.0958	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Barium	56.7		9.58	"	"	"	"	"	
Cadmium	ND		0.0958	"	"	"	"	"	U
Copper	ND		9.58	"	"	"	"	"	U
Lead	ND		9.58	"	"	"	"	"	U
Nickel	ND		9.58	"	"	"	"	"	U
Selenium	ND		0.0958	"	"	"	"	"	U
Silver	ND		0.0958	"	"	"	"	"	U
Zinc	ND		95.8	"	"	"	"	"	U

Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L691255	06/21/2023	07/06/2023	
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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG01@3'
6/21/2023 2:11:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-04 (Soil)

Boron (DTPA Sorbitol)

Boron	0.203		0.0992	mg/L	1	B3F2213	06/22/2023	06/23/2023	
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Metals by Saturated Paste by EPA 6010

Calcium	31.8		0.499	meq/L	10	[CALC]	06/22/2023	06/23/2023	
Magnesium	12.8		0.823	"	"	"	"	"	
Sodium	15.2		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	7.98			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	3.21			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	5.34		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Table 915 metals by EPA 6020B

Arsenic	2.51		0.0877	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Barium	80.8		8.77	"	"	"	"	"	
Cadmium	0.107		0.0877	"	"	"	"	"	
Copper	ND		8.77	"	"	"	"	"	U

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG01@3'
6/21/2023 2:11:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-04 (Soil)

Table 915 metals by EPA 6020B

Lead	ND		8.77	mg/kg	10	B3F2619	06/26/2023	06/27/2023	U
Nickel	ND		8.77	"	"	"	"	"	U
Selenium	0.151		0.0877	"	"	"	"	"	
Silver	ND		0.0877	"	"	"	"	"	U
Zinc	ND		87.7	"	"	"	"	"	U

Total Metals by 7196A

Chromium, Hexavalent	ND	0.248	0.51	mg/Kg	1	L690474	06/21/2023	07/03/2023	
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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG01@6'
6/21/2023 2:13:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-05 (Soil)

Boron (DTPA Sorbitol)

Boron	0.760		0.101	mg/L	1	B3F2213	06/22/2023	06/23/2023	
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Metals by Saturated Paste by EPA 6010

Calcium	4.60		0.499	meq/L	10	[CALC]	06/22/2023	06/23/2023	
Magnesium	11.1		0.823	"	"	"	"	"	
Sodium	27.9		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.22			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	9.95			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	4.62		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Table 915 metals by EPA 6020B

Arsenic	2.67		0.0874	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Barium	148		8.74	"	"	"	"	"	
Cadmium	0.460		0.0874	"	"	"	"	"	
Copper	10.2		8.74	"	"	"	"	"	

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG01@6'
6/21/2023 2:13:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-05 (Soil)

Table 915 metals by EPA 6020B

Lead	8.85		8.74	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Nickel	11.1		8.74	"	"	"	"	"	
Selenium	0.117		0.0874	"	"	"	"	"	
Silver	ND		0.0874	"	"	"	"	"	U
Zinc	ND		87.4	"	"	"	"	"	U

Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.501	mg/Kg	1	L690474	06/21/2023	07/03/2023	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG02@3'
6/21/2023 2:15:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-06 (Soil)

Boron (DTPA Sorbitol)

Boron	0.511		0.100	mg/L	1	B3F2213	06/22/2023	06/23/2023	
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Metals by Saturated Paste by EPA 6010

Calcium	5.99		0.499	meq/L	10	[CALC]	06/22/2023	06/23/2023	
Magnesium	4.23		0.823	"	"	"	"	"	
Sodium	33.1		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.27			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	14.7			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	4.49		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Table 915 metals by EPA 6020B

Arsenic	2.40		0.0875	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Barium	64.3		8.75	"	"	"	"	"	
Cadmium	ND		0.0875	"	"	"	"	"	U
Copper	ND		8.75	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG02@3'
6/21/2023 2:15:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-06 (Soil)

Table 915 metals by EPA 6020B

Lead	ND		8.75	mg/kg	10	B3F2619	06/26/2023	06/27/2023	U
Nickel	ND		8.75	"	"	"	"	"	U
Selenium	ND		0.0875	"	"	"	"	"	U
Silver	ND		0.0875	"	"	"	"	"	U
Zinc	ND		87.5	"	"	"	"	"	U

Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.5	mg/Kg	1	L690474	06/21/2023	07/03/2023	
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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG02@6'
6/21/2023 2:17:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-07 (Soil)

Boron (DTPA Sorbitol)

Boron	0.397		0.100	mg/L	1	B3F2213	06/22/2023	06/23/2023	
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Metals by Saturated Paste by EPA 6010

Calcium	2.09		0.499	meq/L	10	[CALC]	06/22/2023	06/23/2023	
Magnesium	3.02		0.823	"	"	"	"	"	
Sodium	13.7		0.435	"	"	"	"	"	

pH in Soil by 9045D

pH	8.68			pH Units	1	B3F2217	06/22/2023	06/23/2023	
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SAR by 20B Saturated Paste

SAR	8.56			SAR	1	B3F2210	06/22/2023	06/23/2023	
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Specific Conductance Mod. 9050A

Specific Conductance (EC)	2.25		0.00500	mmhos/cm	1	B3F2217	06/22/2023	06/23/2023	
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Table 915 metals by EPA 6020B

Arsenic	3.32		0.0981	mg/kg	10	B3F2619	06/26/2023	06/27/2023	
Barium	108		9.81	"	"	"	"	"	
Cadmium	0.153		0.0981	"	"	"	"	"	
Copper	11.8		9.81	"	"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

BG02@6'
6/21/2023 2:17:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y306555-07 (Soil)

Table 915 metals by EPA 6020B

Lead	ND		9.81	mg/kg	10	B3F2619	06/26/2023	06/27/2023	U
Nickel	12.8		9.81	"	"	"	"	"	
Selenium	ND		0.0981	"	"	"	"	"	U
Silver	ND		0.0981	"	"	"	"	"	U
Zinc	ND		98.1	"	"	"	"	"	U

Total Metals by 7196A

Chromium, Hexavalent	ND	0.244	0.502	mg/Kg	1	L690474	06/21/2023	07/03/2023	
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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2135 - EPA 5030 (soil)

Blank (B3F2135-BLK1)

Prepared: 06/21/2023 Analyzed: 06/21/2023

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							U
1,3,5-Trimethylbenzene	ND	0.00200	"							U
Benzene	ND	0.00200	"							U
Ethylbenzene	ND	0.00200	"							U
Naphthalene	ND	0.00380	"							U
Toluene	ND	0.00200	"							U
Xylenes, total	ND	0.00200	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125	87.6		70-130			
Surrogate: Toluene-d8	0.12		"	0.125	96.1		70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125	85.0		70-130			

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2135 - EPA 5030 (soil)

LCS (B3F2135-BS1)

Prepared: 06/21/2023 Analyzed: 06/21/2023

1,2,4-Trimethylbenzene	0.0975	0.00200	mg/kg	0.100		97.5	70-130			
1,3,5-Trimethylbenzene	0.0985	0.00200	"	0.100		98.5	70-130			
Benzene	0.111	0.00200	"	0.100		111	70-130			
Ethylbenzene	0.0983	0.00200	"	0.100		98.3	70-130			
Naphthalene	0.0929	0.00380	"	0.100		92.9	70-130			
Toluene	0.0975	0.00200	"	0.100		97.5	70-130			
o-Xylene	0.0981	0.00200	"	0.100		98.1	70-130			
m,p-Xylene	0.206	0.00400	"	0.200		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		86.1	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.2	70-130			

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2135 - EPA 5030 (soil)

Matrix Spike (B3F2135-MS1)	Source: Y306541-01			Prepared: 06/21/2023 Analyzed: 06/21/2023						
1,2,4-Trimethylbenzene	0.0873	0.00200	mg/kg	0.100	ND	87.3	70-130			
1,3,5-Trimethylbenzene	0.0867	0.00200	"	0.100	ND	86.7	70-130			
Benzene	0.0983	0.00200	"	0.100	ND	98.3	70-130			
Ethylbenzene	0.0873	0.00200	"	0.100	ND	87.3	70-130			
Naphthalene	0.0848	0.00380	"	0.100	ND	84.8	70-130			
Toluene	0.0875	0.00200	"	0.100	ND	87.5	70-130			
o-Xylene	0.0874	0.00200	"	0.100	ND	87.4	70-130			
m,p-Xylene	0.183	0.00400	"	0.200	ND	91.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		90.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		93.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.8	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2135 - EPA 5030 (soil)

Matrix Spike Dup (B3F2135-MSD1)	Source: Y306541-01			Prepared: 06/21/2023 Analyzed: 06/21/2023						
1,2,4-Trimethylbenzene	0.0981	0.00200	mg/kg	0.100	ND	98.1	70-130	11.6	20	
1,3,5-Trimethylbenzene	0.0983	0.00200	"	0.100	ND	98.3	70-130	12.5	20	
Benzene	0.106	0.00200	"	0.100	ND	106	70-130	7.67	20	
Ethylbenzene	0.0950	0.00200	"	0.100	ND	95.0	70-130	8.40	20	
Naphthalene	0.0964	0.00380	"	0.100	ND	96.4	70-130	12.8	20	
Toluene	0.0959	0.00200	"	0.100	ND	95.9	70-130	9.25	20	
o-Xylene	0.0957	0.00200	"	0.100	ND	95.7	70-130	9.00	20	
m,p-Xylene	0.199	0.00400	"	0.200	ND	99.7	70-130	8.78	20	
Surrogate: 1,2-Dichloroethane-d4	0.11		"	0.125		88.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		94.1	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.0	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3F2137 - EPA 3550B										
Blank (B3F2137-BLK1)										
					Prepared: 06/21/2023 Analyzed: 06/21/2023					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	19		"	24.9		75.3	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2137 - EPA 3550B

LCS (B3F2137-BS1)

Prepared: 06/21/2023 Analyzed: 06/21/2023

Diesel (C10-C28)	833	50.0	mg/kg	1000		83.3	70-130			
Residual Range Organics (C28-C40)	913	200	"	1000		91.3	70-130			
Surrogate: o-Terphenyl	44		"	49.8		88.4	50-150			

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3F2137 - EPA 3550B										
Matrix Spike (B3F2137-MS1)		Source: Y306554-01			Prepared: 06/21/2023 Analyzed: 06/21/2023					
Diesel (C10-C28)	850	50.0	mg/kg	1000	ND	85.0	70-130			
Residual Range Organics (C28-C40)	922	200	"	1000	ND	92.2	70-130			
Surrogate: o-Terphenyl	43		"	49.8		85.5	50-150			

Origins Laboratory, Inc.



Jen Pellegrini, Project Manager

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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3F2137 - EPA 3550B										
Matrix Spike Dup (B3F2137-MSD1)					Source: Y306554-01					Prepared: 06/21/2023 Analyzed: 06/21/2023
Diesel (C10-C28)	842	50.0	mg/kg	1000	ND	84.2	70-130	0.927	35	
Residual Range Organics (C28-C40)	915	200	"	1000	ND	91.5	70-130	0.778	35	
Surrogate: o-Terphenyl	41		"	49.8		82.5	50-150			

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Extractable Petroleum Hydrocarbons by 8015D - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2619 - EPA 3050B

Blank (B3F2619-BLK1)

Prepared: 06/26/2023 Analyzed: 06/27/2023

Arsenic	ND	0.000100	mg/kg							U
Barium	ND	0.0100	"							U
Cadmium	ND	0.000100	"							U
Copper	ND	0.0100	"							U
Lead	ND	0.0100	"							U
Nickel	ND	0.0100	"							U
Selenium	ND	0.000100	"							U
Silver	ND	0.000100	"							U
Zinc	ND	0.100	"							U

LCS (B3F2619-BS1)

Prepared: 06/26/2023 Analyzed: 06/27/2023

Arsenic	0.0544	0.000100	mg/kg	0.0500		109	80-120			
Barium	5.37	0.0100	"	5.00		107	80-120			
Cadmium	0.0559	0.000100	"	0.0500		112	80-120			
Copper	0.556	0.0100	"	0.500		111	80-120			
Lead	0.0527	0.0100	"	0.0500		105	80-120			
Nickel	0.0557	0.0100	"	0.0500		111	80-120			
Selenium	0.0526	0.000100	"	0.0500		105	80-120			
Silver	0.0487	0.000100	"	0.0500		97.3	80-120			
Zinc	0.535	0.100	"	0.500		107	80-120			

Matrix Spike (B3F2619-MS1)

Source: Y306277-01

Prepared: 06/26/2023 Analyzed: 06/27/2023

Origins Laboratory, Inc.



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Tasman Geosciences
 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2619 - EPA 3050B

Matrix Spike (B3F2619-MS1)		Source: Y306277-01			Prepared: 06/26/2023 Analyzed: 06/27/2023					
Arsenic	6.87	0.0854	mg/kg	4.27	2.68	98.3	75-125			
Barium	648	8.54	"	427	195	106	75-125			
Cadmium	4.78	0.0854	"	4.27	0.131	109	75-125			
Copper	51.1	8.54	"	42.7	6.77	104	75-125			
Lead	11.2	8.54	"	4.27	6.68	106	75-125			
Nickel	10.3	8.54	"	4.27	6.37	93.3	75-125			
Selenium	4.23	0.0854	"	4.27	0.171	95.1	75-125			
Silver	4.17	0.0854	"	4.27	0.0367	96.9	75-125			
Zinc	69.9	85.4	"	42.7	27.1	100	75-125			U

Matrix Spike Dup (B3F2619-MSD1)		Source: Y306277-01			Prepared: 06/26/2023 Analyzed: 06/27/2023					
Arsenic	8.11	0.0951	mg/kg	4.75	2.68	114	75-125	16.5	20	
Barium	708	9.51	"	475	195	108	75-125	8.83	20	
Cadmium	5.18	0.0951	"	4.75	0.131	106	75-125	8.01	20	
Copper	55.7	9.51	"	47.5	6.77	103	75-125	8.66	20	
Lead	12.9	9.51	"	4.75	6.68	130	75-125	13.8	20	QM-07
Nickel	12.7	9.51	"	4.75	6.37	133	75-125	20.2	20	QM-07, QR-DUP
Selenium	4.58	0.0951	"	4.75	0.171	92.7	75-125	7.90	20	
Silver	4.48	0.0951	"	4.75	0.0367	93.5	75-125	7.12	20	
Zinc	78.7	95.1	"	47.5	27.1	109	75-125	11.8	20	U

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 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2306 - EPA 3580

Blank (B3F2306-BLK1)

Prepared: 06/23/2023 Analyzed: 06/23/2023

1-Methylnaphthalene	ND	0.002	mg/kg							U
2-Methylnaphthalene	ND	0.002	"							U
Acenaphthene	ND	0.020	"							U
Anthracene	ND	0.020	"							U
Benzo (a) anthracene	ND	0.005	"							U
Benzo (a) pyrene	ND	0.020	"							U
Benzo (b) fluoranthene	ND	0.020	"							U
Benzo (g,h,i) perylene	ND	0.020	"							U
Benzo (k) fluoranthene	ND	0.020	"							U
Chrysene	ND	0.020	"							U
Dibenz (a,h) anthracene	ND	0.020	"							U
Fluoranthene	ND	0.020	"							U
Fluorene	ND	0.020	"							U
Indeno (1,2,3-cd) pyrene	ND	0.020	"							U
Naphthalene	ND	0.002	"							U
Phenanthrene	ND	0.020	"							U
Pyrene	ND	0.020	"							U

Surrogate: Nitrobenzene-d5	180		ug/kg	200		92.1	60-130			
Surrogate: 2-Fluorobiphenyl	200		"	200		100	60-130			
Surrogate: Terphenyl-d14	210		"	200		103	60-130			

LCS (B3F2306-BS1)

Prepared: 06/23/2023 Analyzed: 06/23/2023

1-Methylnaphthalene	0.208	0.002	mg/kg	0.200		104	70-130			
2-Methylnaphthalene	0.218	0.002	"	0.200		109	70-130			
Acenaphthene	0.202	0.020	"	0.200		101	70-130			
Anthracene	0.207	0.020	"	0.200		104	70-130			
Benzo (a) anthracene	0.211	0.005	"	0.200		106	70-130			

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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2306 - EPA 3580

LCS (B3F2306-BS1)

Prepared: 06/23/2023 Analyzed: 06/23/2023

Benzo (a) pyrene	0.204	0.020	mg/kg	0.200		102	70-130			
Benzo (b) fluoranthene	0.198	0.020	"	0.200		99.2	70-130			
Benzo (g,h,i) perylene	0.192	0.020	"	0.200		95.8	70-130			
Benzo (k) fluoranthene	0.221	0.020	"	0.200		110	70-130			
Chrysene	0.198	0.020	"	0.200		99.0	70-130			
Dibenz (a,h) anthracene	0.188	0.020	"	0.200		94.1	70-130			
Fluoranthene	0.234	0.020	"	0.200		117	70-130			
Fluorene	0.210	0.020	"	0.200		105	70-130			
Indeno (1,2,3-cd) pyrene	0.201	0.020	"	0.200		100	70-130			
Naphthalene	0.203	0.002	"	0.200		102	70-130			
Phenanthrene	0.216	0.020	"	0.200		108	70-130			
Pyrene	0.193	0.020	"	0.200		96.4	70-130			
Surrogate: Nitrobenzene-d5	170		ug/kg	200		87.0	60-130			
Surrogate: 2-Fluorobiphenyl	210		"	200		103	60-130			
Surrogate: Terphenyl-d14	190		"	200		95.4	60-130			

Matrix Spike (B3F2306-MS1)

Source: Y306584-01

Prepared: 06/23/2023 Analyzed: 06/23/2023

1-Methylnaphthalene	0.206	0.002	mg/kg	0.200	ND	103	70-130			
2-Methylnaphthalene	0.215	0.002	"	0.200	ND	107	70-130			
Acenaphthene	0.215	0.020	"	0.200	0.003	106	70-130			
Anthracene	0.202	0.020	"	0.200	ND	101	70-130			
Benzo (a) anthracene	0.205	0.005	"	0.200	0.006	99.7	70-130			
Benzo (a) pyrene	0.199	0.020	"	0.200	ND	99.6	70-130			
Benzo (b) fluoranthene	0.206	0.020	"	0.200	0.006	99.8	70-130			
Benzo (g,h,i) perylene	0.202	0.020	"	0.200	ND	101	70-130			
Benzo (k) fluoranthene	0.224	0.020	"	0.200	ND	112	70-130			
Chrysene	0.193	0.020	"	0.200	0.007	92.9	70-130			

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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2306 - EPA 3580

Matrix Spike (B3F2306-MS1)		Source: Y306584-01			Prepared: 06/23/2023 Analyzed: 06/23/2023					
Dibenz (a,h) anthracene	0.200	0.020	mg/kg	0.200	ND	99.9	70-130			
Fluoranthene	0.242	0.020	"	0.200	0.019	112	70-130			
Fluorene	0.208	0.020	"	0.200	0.002	103	70-130			
Indeno (1,2,3-cd) pyrene	0.206	0.020	"	0.200	0.005	100	70-130			
Naphthalene	0.202	0.002	"	0.200	0.002	100	70-130			
Phenanthrene	0.217	0.020	"	0.200	0.017	99.8	70-130			
Pyrene	0.197	0.020	"	0.200	0.013	91.9	70-130			
Surrogate: Nitrobenzene-d5	180		ug/kg	200		88.2	60-130			
Surrogate: 2-Fluorobiphenyl	210		"	200		105	60-130			
Surrogate: Terphenyl-dl4	190		"	200		96.5	60-130			

Matrix Spike Dup (B3F2306-MSD1)		Source: Y306584-01			Prepared: 06/23/2023 Analyzed: 06/23/2023					
1-Methylnaphthalene	0.203	0.002	mg/kg	0.200	ND	102	70-130	1.41	20	
2-Methylnaphthalene	0.215	0.002	"	0.200	ND	107	70-130	0.0693	20	
Acenaphthene	0.213	0.020	"	0.200	0.003	105	70-130	1.02	20	
Anthracene	0.200	0.020	"	0.200	ND	99.9	70-130	1.33	20	
Benzo (a) anthracene	0.235	0.005	"	0.200	0.006	115	70-130	13.4	20	
Benzo (a) pyrene	0.203	0.020	"	0.200	ND	101	70-130	1.68	20	
Benzo (b) fluoranthene	0.200	0.020	"	0.200	0.006	97.2	70-130	2.62	20	
Benzo (g,h,i) perylene	0.200	0.020	"	0.200	ND	100	70-130	0.812	20	
Benzo (k) fluoranthene	0.214	0.020	"	0.200	ND	107	70-130	4.77	20	
Chrysene	0.220	0.020	"	0.200	0.007	106	70-130	13.1	20	
Dibenz (a,h) anthracene	0.183	0.020	"	0.200	ND	91.3	70-130	9.02	20	
Fluoranthene	0.262	0.020	"	0.200	0.019	122	70-130	8.01	20	
Fluorene	0.217	0.020	"	0.200	0.002	107	70-130	3.99	20	
Indeno (1,2,3-cd) pyrene	0.191	0.020	"	0.200	0.005	92.9	70-130	7.47	20	
Naphthalene	0.201	0.002	"	0.200	0.002	99.8	70-130	0.308	20	

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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2306 - EPA 3580

Matrix Spike Dup (B3F2306-MSD1)	Source: Y306584-01			Prepared: 06/23/2023 Analyzed: 06/23/2023						
Phenanthrene	0.243	0.020	mg/kg	0.200	0.017	113	70-130	11.3	20	
Pyrene	0.222	0.020	"	0.200	0.013	105	70-130	12.2	20	
<i>Surrogate: Nitrobenzene-d5</i>	170		ug/kg	200		85.6	60-130			
<i>Surrogate: 2-Fluorobiphenyl</i>	210		"	200		103	60-130			
<i>Surrogate: Terphenyl-dl4</i>	190		"	200		95.5	60-130			

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Jen Pellegrini, Project Manager

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 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B3F2210 - Saturated Paste Metals

Blank (B3F2210-BLK1)

Prepared: 06/22/2023 Analyzed: 06/23/2023

SAR	0.00		SAR							U
Calcium PPM	ND	10.0	mg/L							U
Magnesium PPM	ND	10.0	"							U
Sodium PPM	ND	10.0	"							U

Duplicate (B3F2210-DUP1)

Source: Y306546-01

Prepared: 06/22/2023 Analyzed: 06/23/2023

Calcium PPM	28.9	10.0	mg/L		28.3			2.20	50	
SAR	0.00		SAR		0.340			200	200	U
Magnesium PPM	5.41	10.0	mg/L		5.36			0.928	50	U
Sodium PPM	7.80	10.0	"		7.52			3.66	50	U

Batch B3F2213 - DTPA Sorbitol Preparation

Blank (B3F2213-BLK1)

Prepared: 06/22/2023 Analyzed: 06/23/2023

Boron	ND	0.100	mg/L							U
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Duplicate (B3F2213-DUP1)

Source: Y306546-01

Prepared: 06/22/2023 Analyzed: 06/23/2023

Boron	0.160	0.101	mg/L		0.167			3.88	50	
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Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B3F2217 - Saturated Paste pH/EC										
Blank (B3F2217-BLK1)					Prepared: 06/22/2023 Analyzed: 06/23/2023					
Specific Conductance (EC)	ND	0.00500	mmhos/cm							U
Duplicate (B3F2217-DUP1)					Source: Y306546-01 Prepared: 06/22/2023 Analyzed: 06/23/2023					
pH	8.24		pH Units		8.35			1.33	25	
Specific Conductance (EC)	0.286	0.00500	mmhos/cm		0.269			6.13	25	

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 6855 West 119th Avenue
 Broomfield CO 80020

Andy Sagen
 Project Number: [none]
 Project: KMG - VOGL 5-8A

**Total Metals by 7196A - Quality Control
 Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch L690474 -										
DUP (L 94306-DUP)		Source: Y306555-06			Prepared: Analyzed: 07/03/2023					
Chromium, Hexavalent	ND	0.5	mg/Kg		<0.500		-	0	20	
MS (L 94306-MS)		Source: Y306555-06			Prepared: Analyzed: 07/03/2023					
Chromium, Hexavalent	34.4	2.5	mg/Kg	39	<1.22	88	75-125			
Batch L691255 -										
DUP (L 95387-DUP)		Source: 95387			Prepared: Analyzed: 07/06/2023					
Chromium, Hexavalent	ND	0.5	mg/Kg		<0.500		-	0	20	
MS (L 95387-MS)		Source: 95387			Prepared: Analyzed: 07/06/2023					
Chromium, Hexavalent	35.8	2.51	mg/Kg	40.2	<1.22	89	75-125			
LCS (LCS)					Prepared: Analyzed: 07/06/2023					
Chromium, Hexavalent	7.09	0.5	mg/Kg	8		89	75-125			
LRB (LRB)					Prepared: Analyzed: 07/06/2023					
Chromium, Hexavalent	ND	0.5	mg/Kg				-			

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6855 West 119th Avenue
Broomfield CO 80020

Andy Sagen
Project Number: [none]
Project: KMG - VOGL 5-8A

Notes and Definitions

U Sample is Non-Detect.

QR-DUP RPD exceeds QC acceptance criteria, this indicates source sample is not homogenous.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

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